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(S) NATIONAL RECONNAISSANCE OFFICE

WASHINGTON, D.C.

OFFICE OF THE DIRECTOR

September 23, 1967

MEMORANDUM FOR MR. NITZE
MR. HELMS
DR. HORNIG

SUBJECT: SR-71/A-12 Comparison

As requested at the ExCom meeting of September 12th, I am enclosing a number of charts which compare various aircraft and sensor performance characteristics of the SR-71 and A-12 aircraft and a partial inventory of the current assets of each program.

With respect to aircraft performance alone, there is little difference in range between the two aircraft. The A-12 will have an altitude advantage of from 2,000 to 5,000 feet over the SR-71 at the same MACH number since it is a lighter aircraft. 25X1

[redacted] With regard to the problem of surveillance of North Vietnam for surface-to-surface missiles, the photographic sensors are the primary and probably the only sensors applicable; it appears to me that both aircraft sensor systems are adequate for this task.

Aircraft performance figures shown on page 3 of the attachment were obtained from the program offices and represent best current assessments of maximum capabilities of these aircraft. The actual current operations with these aircraft are at somewhat lower performance because of conservative operational practices with respect to fuel reserves and margins with respect to red-line speed limits. Partly because of the longer period of operational training and experience with the A-12, the operational limits are currently somewhat closer to the maxima. However the current operational limitation of the SR-71 to MACH 3.0 is primarily due to [redacted] 25X1

25X4 USAF

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In order to provide a basis for comparison of the intrinsic aerodynamic performance of the two configurations, Lockheed was asked to provide data based on their flight tests and extrapolations from such tests. These data are presented on pages 4 to 8 of the attachments. The current levels of performance of both aircraft are somewhat better in range and poorer in altitude than the Lockheed data. Improvements in inlets and inlet controls, propulsion system, fuel management techniques, etc, which have been accomplished or are in process account for the small variations in performance figures which may be obtained from various sources.

The radar cross section of the two aircraft in a clean configuration is relatively low for both the SR-71 and the A-12. The SR-71 in its full sensor configuration is somewhat higher due to its larger size [redacted] 25X1 but this will not increase vulnerability to the [redacted] significantly, providing 25X4 USAF installed ECM systems are utilized. Based on simulator test results, it appears that the probability of kill in North Vietnam is nil for either aircraft with presently utilized configurations and flight profiles, as long as the ECM techniques used remain viable. In any event, if it should be concluded that the radar cross section is too high for any particular operation, [redacted] 25X1

[redacted] NRO 25X1

Alexander H. Flax

Attachments
10 charts

25X1

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CURRENT PERFORMANCE COMPARISON

25X4 USAF

Range between tankers	
Penetration altitude (Initial cruise altitude)	
End cruise altitude	
Speed (MACH)*	

This above data has been provided by the respective program offices.

* At the present time it should be noted that the SR-71 is being flown at MACH 3.0 for training and the A-12 is normally flown at MACH 3.1 with correspondingly lower figures for other items of performance shown above.

25X1

25X1

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COMPARATIVE CONFIGURATION

Configuration	A-12
Technical Objective Camera	1*
Operational Objective Camera	0
Terrain Objective Camera	0

25X4 USAF [redacted]

[redacted]

25X1

25X1

[redacted]

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